

AMENDMENTS

Please amend the above-identified application as follows:

IN THE CLAIMS:

Please amend the claim set to read as follows:

1. (Currently amended) A process for producing a membrane electrode assembly for fuel cells containing a polymer electrolyte membrane having a first surface and a second surface parallel to each other, said first surface forming a firm composite with a first catalyst layer and a first water repellent gas distribution layer and said second surface forming a firm composite with a second catalyst layer and a second water repellent gas distribution layer, comprising applying ~~each of~~ said first catalyst layer and ~~said second catalyst layer~~ to or contacting said first catalyst layer with the first surface of the polymer electrolyte membrane and applying said second catalyst layer to or contacting said second catalyst layer with the second surface respective surfaces of the polymer electrolyte membrane successively, wherein during the application or contacting process to one surface, always an opposite surface of the membrane is supported, said catalyst layers being prepared by using an ink containing an electrocatalyst, one at least solvent, proton-conducting ionomer and optionally a water repelling ~~agents~~ agent and a pore-forming agent.

2. (Currently amended) The process according to Claim 1, ~~further comprising~~ wherein a polymer electrolyte membrane is used the first surface of which is readily accessible and the second surface of which is supported by a backing film and further comprising

- a) producing a composite of said first surface with the first catalyst layer and the first water repellent gas distribution layer,
 - b) removing the backing film from the second surface of the membrane, and
 - c) producing the composite of said second surface with the second catalyst layer and the second gas distribution layer.
3. (Original) The process according to Claim 2, wherein process step a) includes
 - a1) coating the first surface of the membrane with the first catalyst layer using a first ink and
 - a2) laying the first gas distribution layer on the still moist catalyst layer and drying the composite.
4. (Original) The process according to Claim 3, wherein ink for producing the first catalyst layer contains predominantly organic solvents.
5. (Currently amended) The A process according to Claim 4, wherein process step c) includes:
 - c1) coating the second surface of the membrane with the second catalyst layer using a second ink and
 - c2) laying the second gas distribution layer on the still moist catalyst layer and drying the composite.
6. (Original) The process according to Claim 5, wherein the ink for producing the second catalyst layer contains predominantly organic solvents.
7. (Original) The process according to Claim 4, wherein process step c) includes

- c3) coating the second gas distribution layer with the second catalyst layer using a second ink and
 - c4) laying the still moist catalyst layer on the second surface of the membrane and drying the composite.
8. (Original) The process according to Claim 7, wherein ink for producing the second catalyst layer contains predominantly water as a solvent.
9. (Original) The process according to Claim 8, wherein the first catalyst layer forms the cathode and the second catalyst layer forms the anode in the membrane electrode assembly.
10. (Currently amended) The process according to Claim 4, wherein process step c) includes
- c5) coating the second gas distribution layer with the second catalyst layer using a second ink and drying the coating and
 - c6) laying the catalyst layer on the second surface of the membrane and
 - d) compressing the entire composite at a elevated temperature of at least 130°C.
11. (Currently amended) The process according to Claim 11, wherein ink for producing the second catalyst layer contains predominantly water as a solvent.
12. (Original) The process according to Claim 11, wherein the first catalyst layer forms the cathode and the second catalyst layer forms the anode in the

membrane electrode assembly.

13. (Currently amended) The process according to Claim 2, ~~further comprising~~ wherein process steps a) and c) includes further comprise
 - a3) coating the first gas distribution layer with the first catalyst layer using a first ink and drying the coating,
 - a4) moistening the first catalyst layer with an organic ionomer solution and
 - a5) laying the moistened first catalyst layer on the first surface of the membrane and drying the composite,
 - c7) coating the second gas distribution layer with the second catalyst layer using a second ink and drying the coating,
 - c8) moistening the second catalyst layer with an organic ionomer solution and
 - c9) laying the moistened second catalyst layer on the second surface of the membrane and drying the composite.
14. (Currently amended) The process according to Claim 13, wherein said ink for producing the catalyst layers contains predominantly water as a solvent.
15. (Original) The process according to Claim 1, wherein the gas distribution layers are coated with a carbon-containing, hydrophobic microporous layer before making contact with the relevant catalyst layer.
16. (Currently amended) The process according to Claim 15, wherein the catalyst layers are washed at an elevated temperature after drying.

Amendment and Response to Office Action

Applicants: Köhler *et al.*

Serial No. 09/973,193

Filed: October 10, 2001

Docket 13333 US

Page 6 of 9

17. (Original) The process according to Claim 1, wherein the polymer electrolyte membrane and gas distribution layers are used in the form of rolled goods and the entire process takes place continuously.
18. (Currently amended) The process according to Claim 17, wherein the catalyst layers are washed at an elevated temperature after drying.
19. (Original) The process according to Claim 1, wherein the catalyst layers are applied to the polymer electrolyte membrane and gas distribution layers by spraying, brushing or printing.
20. (Original) The process according to Claim 1, wherein the catalyst layers are applied to the strip-shaped polymer electrode membrane in the geometric dimensions required for fuel cells by means of screen printing and said gas distribution layers are laid precisely on the catalyst layers using sheet feeders.
21. (Original) The process according to claim 1, wherein the polymer electrolyte membrane is preswollen in water or organic solvents before application of or making contact with the catalyst layers.
22. (Canceled)
23. (Canceled)